

STAT

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ANNOTATIONS VIII<sup>1</sup>)

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<sup>1</sup>(Preceded by the following:

I, Met. Z. 35 (1918), 181;

II, Met. Z. 36 (1919), 11;

III, Met. Z. 36 (1919), 207;

IV, Met. Z. 36 (1919), 202;

V, Met. Z. 37 (1920), 152;

VI, Met. Z. 37 (1920), 182;

VII, Met. Z. 38 (1921), 225.

1. The Wandering Meteorologist

W. Koppen once outlined where a man would have to travel if he wanted the climatically most comfortable living conditions year in, year out.

It is the good fortune of the meteorologist to consider himself a wanderbird daily, when he determines the airmass with which he is dealing in his weather diagnosis. Meteorologists of the temperate zone are fortunate to be able to delve temporarily into all areas of the earth insofar as the climate is concerned. With the exception of the E-air-mass [superior air mass], which we can determine only rarely, we have knowledge concerning all other air-masses that are classified by indexes in front and back, and we would not forego the pleasure of interpreting<sup>ing</sup> the daily weather diagnosis as a "travel report on location". This pleasure would be in addition to the other pointed out by W. N. Shaw when he spoke of the "weather-drama" in which the individual air masses appear as actors which move on the stage of the weather-process.

He, who has once adjusted himself to these pleasures will rejoice in the enrichment of his existence when others go into the world in order to see and experience new things. A rich inner life is a compensation for the stationary life to which he is doomed. In my opinion geography teachers at schools of all types should especially give expression to such ideas because they will lead to an enhancement of life that costs nothing.

## 2. The Plant as a Supplier of Dew

In a report on the frequency and distribution of dew in Palestine by D. Ashbel (Met. Rundsch. 3 (1950), 137) it is stated: "Special reference is made to the fact that under certain circumstances considerably more dew can condense on a plant than corresponds to the ground surface which the leaves of this plant cover, because the leaf surfaces are in part very rough".

I should like to refer to observations on the Königsplatz in Munich from which the fact was obtained directly that dew results not only from the condensation of moisture in the air whose quantity is determined by the surface area of the leaves, <sup>but</sup> ~~even~~ the smallest water circulation may contribute, such as when the water vapor rising from the warmer earth is recondensed immediately after leaving the ground. The plant itself is also a supplier of water vapor for the dew condensed on it, which may be seen by walking through meadows at sunset on nice summer evenings. (Wetter und Klima 1948, 30).

## 3. The Interpretation of Föhn-wedges

Investigations of the currently popular "jet stream" have

shown among other things that the mountains extending in a north-south direction at the western boundary of North America make themselves noticeable as formative agents up to great heights. The planetary westward current is anticyclonically bent on the windward side and cyclonically on the lee side, from which a northward pointing pressure wedge results.

If we transfer these observations to the Alps, which extend in a west-east direction, then from a positive, meridional southerly current such as is encountered on the eastern side of high reaching low-pressure troughs we can expect pressure-increase areas on the windward side and pressure-drop areas on the lee side to form and to lead to the typical "fohn-wedge". The old meteorologists recall the intense fight between the two schools about the "cause" of the "fohn-wedges" which took place a generation ago.

Similar ideas will be applied to the interpretation of west-wedges as a result of a powerful northerly current without encountering a thermodynamic contradiction. Our atmosphere often knows several ways of arriving at the same state. Pioneers have the right to be one-sided; the onlooker is happy if he finds that another interpretation is also possible.

#### 4. Everyday Meteorology

(a) When fresh bread is treated in an electric toaster and then is put on a plate many people are surprised to find a dew formation after picking it up from the plate. This can be explained to students in elementary courses as the smallest form of water circulation.

(b) With increasing humidity one can observe the moist lanes of asphalt roads on which cars are being driven, and these may be utilized for local meteorological diagnosis. The humidity produced by the exhaust gases of the motor, which in a dry atmosphere is immediately transformed into the gaseous state, may just be sufficient to reach the dew point of an atmosphere containing increased humidity. The situation is the same as in the case of the formation of vapor trails of an airplane which indicate that air having greater humidity has arrived.

(c) when it has rained and drier air arrives, the auto lanes of the road dry earliest, which must attract attention in contrast to the wet strips mentioned under (b). The turbulence produced by the vehicles more rapidly eliminates the water evaporating from the moist street than is the case at the sides of the street which are dependent upon the diffusion process in order to dry.

(d) A large number of meteorological questions may be asked during the cold hours of the day and cold seasons, if the students are made to observe show-windows in the process of being covered with dew or frost. Depending on whether the show case is in [heat] exchange with the store behind, or protected from it by partial or entire separation, attractive pictures result from day to day even for the small-scale climatologist, while passers-by walk past uninterested, although they all have reason to question the phenomenon. No scientifically oriented teacher should neglect this form of visual instruction for which no instruments are needed.

Whoever does not yet know that fresh meat consists to a high

percentage of water, obtains proof in the thickness of the winter frost on butcher-shop windows, while at the same time the show-windows containing textiles only show a firmament [sic] of delightful ice-flower formations. And if he pays attention to the wiping-traces left by a preceding window-cleaning which become visible when covered with dew and rime, he can explain to his students the significance of condensation nuclei in the course of an instructive hike.

The constantly changing water vapor shows in an abundance of modifications what the microscopist renders visible by coloring of the tissues and the aerodynamicist by the addition of smoke. In this way one can undertake real exploration trips with one's children: Forms which the cloud-scientist Suring taught us to understand in the sky find their complement on show-windows.

##### 5. Pressure Increase directly prior to Pressure-Drop

Our primitive meteorological service of forty years age determined that the air pressure often shows a brief increase before the onset of a low pressure area coming from the northwest, and that it would be wrong to conclude that the low pressure area would take a direction other than that directed towards us. We formulated "meteorological paradoxes" in the manner popular at that time: "with pressure increase the advance of a low pressure area may be expected".

I was reminded of this observation during a lecture by [Miss] Dr. I. Reinecke on "Deviations from the Gradient Wind in the Upper troposphere" at the meeting of meteorologists in

Hamburg in October 1950, during which reference was made to our current knowledge of the "jet stream", which in its progress from the west can produce a pressure-drop-area on the north side, and a pressure-increase-area on the south side.

In our simple terminology we said: The low pressure area throws up a hill on its frontal side which announces its approach. And thus we made a correct prediction before we knew why this happens.

This reminded me once again of the parallels to the medical profession, which began successfully when one had no knowledge as yet of the nature of the illness concerned, but knew how to diagnose it by its symptoms. We need only to think of the classicist of diagnosis, Hippocrates, who was one of the best doctors of antiquity without being the best physician in today's sense.

At the same meeting in Hamburg the Dutchman van der Bijl presented a spirited lecture on the "Four Sources of Error in Scientific Statistical Research", in which he also came to speak of "the common sense". This expression received such a welcome that it almost became the guiding thought of the subsequent session. There is something consoling about it, when at times the tremendous technical apparatus which the meteorological service of today requires makes you doubt whether as prognosticator you have the right to exist without it. Let us benefit from the practitioner who knows how to interpret the symptoms of an illness before the nature of the illness is disclosed, and practice the observation of the progress of a weather development in order to draw conclusions from it for a similar case. One cannot escape the feeling that the



"staff officers" among the meteorologists who sit in front of their numerous maps have little time to view their patient in actuality.

The older ones among us remember the excitement connected with the appearance of G. Guilbert's book, Nouvelle methode de prevision du temps [New Method of Weather Forecasting]. This was a "common sense" book in which the author pursued a fruitful, entirely original line of thought which we encountered again in later work, as for example, in the "Grossmann-Keil" [Grossmann Wedge] and in the observations on convergent and divergent currents etc. Whoever today speaks of delta in an air-current and of the dispersion of the isobars etc., should at some time, if only for the sake of historical interest, read this work. To my knowledge Suring also enjoyed it.

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